

8.3 Cultural Resources

8.3.1 Introduction

This subsection determines whether cultural resources are present and could be affected adversely by the Turlock Irrigation District (TID or Applicant) Walnut Energy Center (WEC) project. The significance of any potentially affected resources is assessed, and measures are proposed to mitigate potential adverse project effects. This study was conducted by Dr. James C. Bard, Mr. James J. Sharpe, M.S., and Mr. Robin D. McClintock, B.S. — all CH2M HILL Cultural Resource Specialists who meet the standards and guidelines for archaeology and historic preservation (USNPS 1983).

This subsection is consistent with both federal and state regulatory requirements for cultural resources pursuant to Sections 106 and 110 of the National Historic Preservation Act (NHPA) of 1966 (as amended) (16 USC 470f) and its implementing regulations, 36 CFR Part 800, and the California Environmental Quality Act (CEQA). The study scope was developed in consultation with the CEC's cultural resources staff and complies with *Instructions to the California Energy Commission Staff for the Review of and Information Requirements for an Application for Certification* (CEC 1992) and *Rules of Practice and Procedure & Power Plant Site Certification Regulations* (CEC 1997).

Cultural resources include prehistoric and historic archaeological sites;¹ districts and objects; standing historic structures, buildings, districts and objects; and locations of important historic events, or sites of traditional/cultural importance to various groups.²

Subsection 8.3.2 discusses the laws, ordinances, regulations, and standards (LORS) applicable to the protection of cultural resources. Subsection 8.3.3 describes the cultural resources environment that might be affected by the WEC. Subsection 8.3.4 discusses the environmental consequences of construction of the proposed development. Subsection 8.3.5 determines whether there are any cumulative effects from the project, and Subsection 8.3.6 presents mitigation measures that will be implemented to avoid construction impacts. Subsection 8.3.7 lists the agencies involved and agency contacts, and Subsection 8.3.8 discusses permits and the permitting schedule. Subsection 8.3.9 lists reference materials used in preparing this section.

1 Site – “The location of a significant event, a prehistoric or historic occupation or activity, or a building or structure...where the location itself possesses historic, cultural, or archeological value.” (USNPS-IRD 1991:15).

2 The federal definitions of cultural resource, historic property or historic resource, traditional use area, and sacred resources are reviewed below and are typically applied to non-federal projects.

A cultural resource may be defined as a phenomenon associated with prehistory, historical events or individuals or extant cultural systems. These include archaeological sites, districts and objects; standing historic structures, districts and objects; locations of important historic events; and places, objects and living or non-living things that are important to the practice and continuity of traditional cultures. Cultural resources may involve historic properties, traditional use areas and sacred resource areas.

Historic property or historic resource means any prehistoric district, site building, structure, or object included in, or eligible for, inclusion in the National Register of Historic Places. The definition also includes artifacts, records and remains that are related to such a district, site, building, structure or object.

Traditional use area refers to an area or landscape identified by a cultural group to be necessary for the perpetuation of the traditional culture. The concept can include areas for the collection of food and non-food resources, occupation sites and ceremonial and/or sacred areas.

Sacred resources applies to traditional sites, places or objects that Native American tribes or groups, or their members, perceive as having religious significance.

Appendix 8.3A provides copies of agency consultation letters. Appendix 8.3B provides the proposed Native American Burial Protection Plan for the project. Figure 8.3-1 (all figures are located at the end of this subsection) depicts areas surveyed by CH2M HILL for the project. Resumes of those participating in the surveys are provided in Appendix 8.3C.

If possible, all recorded cultural resources will be avoided completely by the WEC project. However, if avoidance is not possible through project redesign, the significance of the affected resources will be evaluated formally using appropriate federal and/or state and local cultural resource significance evaluation criteria and guidelines. If a resource is determined to be significant, a data recovery program or some other appropriate mitigative effort will be undertaken in consultation with the CEC.

The WEC project is subject to CEC and CEQA permitting requirements. If the project becomes subject to federal agency involvement (permitting, licensing, etc.), additional authorities related to cultural resources may be triggered, including the National Environmental Policy Act and the Archaeological and Historic Preservation Act (AHPA) of 1974 (16 USC 469), among others. The AHPA includes requirements to coordinate with the Secretary of the Interior for notification, data recovery, protection and/or preservation when a federally licensed project may cause the irreparable loss or destruction of significant scientific, prehistoric, historic, or archaeological data. In 1983, the Secretary of the Interior established standards for gathering and treating data related to cultural resources in *Standards and Guidelines for Archaeology and Historic Preservation*.

8.3.2 Laws, Ordinances, Regulations and Standards

A summary of applicable LORS is provided in Table 8.3-1.

8.3.2.1 Federal Statutes/Regulations

The NHPA of 1966 (as amended) established the federal government's policy on historic preservation and the programs, including the National Register of Historic Places (NRHP), through which that policy is implemented. Under the NHPA, historic properties include "...any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places" (16 USC 470w (5)).³ The NHPA of 1966 (as amended) and its implementing regulations (16 USC 470 et seq., 36 CFR Part 800, 36 CFR Part 60, and 36 CFR Part 63) require the agency(ies) to consider the effect of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that could adversely affect cultural properties listed or eligible for listing on the NRHP.

If a Clean Water Act (CWA) Section 404 permit is required for construction (wetland fills or crossings), the NHPA of 1966 (as amended) and its implementing regulations (16 USC 470 et seq., 36 CFR Part 800, 36 CFR Part 60, and 36 CFR Part 63) also apply. The U.S. Army Corps

3 The National Register criteria for evaluation include: (1) it is at least 50 years old; (2) it retains integrity of location, design, setting, materials, workmanship, feeling, and association; and (3) it has one or all of the following characteristics of association: (a) "...with events that have made a significant contribution to the broad patterns of our history;" (b) "...with the lives of persons significant in our past;" (c) "...that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;" or (d) "...have yielded, or may be likely to yield, information important in prehistory or history."

TABLE 8.3-1

Applicable Cultural Resource Laws, Ordinances, Regulations, and Standards

Law, Ordinance, Regulation, or Standard	Applicability	Project Conformity?	AFC Reference
California Environment Quality Act Guidelines	Project construction may encounter archaeological resources	Yes	Section 8.3.2
Health and Safety Code Section 7050.5	Construction may encounter Native American graves, Coroner calls NAHC	Yes	Appendix 8.3B
Public Resources Code Section 5097.98	Construction may encounter Native American graves, NAHC assigns Most Likely Descendant	Yes	Appendix 8.3B
Public Resources Code Section 5097.5/5097.9	Would apply only if some project land were acquired by the state (currently no state land)	Yes	Section 8.3.2
National Historic Preservation Act	Issuance of a Clean Water Act Section 404 permit is a federal undertaking	Yes	Section 8.3.8
Archaeological Resources Protection Act	Protects archaeological resources from vandalism and unauthorized collecting on federal land	Yes	Section 8.3.2
Native American Graves Protection and Repatriation Act	Assigns ownership of Native American graves on federal land to Native American descendants or culturally affiliated organizations	Yes	Appendix 8.3B
Stanislaus County General Plan Chapter 3, Conservation/Open Space Element (October 1994)	Sets policies to preserve historically and archaeologically significant structures, sites, districts, and artifacts	Yes	Section 8.3.2
City of Turlock 1996 General Plan/Zoning	No City of Turlock General Plan or Zoning Ordinance requirements address cultural or historic resources	Not Applicable	Section 8.3.2

of Engineers (USACE), as lead federal agency for issuing the CWA Section 404 permit, would be the lead agency for NHPA Section 106 compliance, and consultation with the SHPO and ACHP would be required.

8.3.2.2 State of California Statutes

CEQA requires review to determine if a project will have a significant effect on archaeological sites or a property of historic or cultural significance to a community or ethnic group eligible for inclusion in the California Register of Historical Resources (CRHR) (CEQA Guidelines). CEQA equates a substantial adverse change in the significance of a historical resource with a significant effect on the environment (Section 21084.1 of the Public Resources Code) and defines substantial adverse change as demolition, destruction, relocation, or alteration that would impair historical significance (Section 5020.1). Section

21084.1 stipulates that any resource listed in, or eligible for listing in, the CRHR⁴ is presumed to be historically or culturally significant.⁵

Resources listed in a local historic register or deemed significant in a historical resource survey (as provided under Section 5024.1g) are presumed historically or culturally significant unless the preponderance of evidence demonstrates they are not.

A resource that is not listed in or determined to be eligible for listing in the CRHR, is not included in a local register of historic resources, nor deemed significant in a historical resource survey, may nonetheless be historically significant (Section 21084.1; see Section 21098.1).

CEQA requires a Lead Agency to identify and examine environmental effects that may result in significant adverse effects. Where a project may adversely affect a unique archaeological resource,⁶ Section 21083.2 requires the Lead Agency to treat that effect as a significant environmental effect and prepare an Environmental Impact Review (EIR). When an archaeological resource is listed in or is eligible to be listed in the CRHR, Section 21084.1 requires that any substantial adverse effect to that resource be considered a significant environmental effect. Sections 21083.2 and 21084.1 operate independently to ensure that potential effects on archaeological resources are considered as part of a project's environmental analysis. Either of these benchmarks may indicate that a project may have a potential adverse effect on archaeological resources.

Other state-level requirements for cultural resources management appear in the California Public Resources Code Chapter 1.7, Section 5097.5 (Archaeological, Paleontological, and Historical Sites), and Chapter 1.75, beginning at Section 5097.9 (Native American Historical, Cultural, and Sacred Sites) for lands owned by the state or a state agency.

The disposition of Native American burials is governed by Section 7050.5 of the California Health and Safety Code and Sections 5097.94 and 5097.98 of the Public Resources Code, and falls within the jurisdiction of the Native American Heritage Commission (NAHC).

If human remains are discovered, the Stanislaus County Coroner must be notified within 48 hours and there should be no further disturbance to the site where the remains were

4 The CRHR is a listing of "...those properties which are to be protected from substantial adverse change." Any resource eligible for listing in the California Register is also to be considered under CEQA.

5 A historical resource may be listed in the CRHR if it meets one or more of the following criteria: "(1) is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; (2) is associated with the lives of persons important to local, California or national history; (3) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or (4) has yielded or has the potential to yield information important in prehistory or history (...of the local area, California or the nation)" (Public Resources Code §5024.1, Title 14 CCR, Section 4852). Automatic CRHR listings include NRHP listed and determined eligible historic properties (either by the Keeper of the NRHP or through a consensus determination on a project review); State Historical Landmarks from number 770 onward; and Points of Historical Interest nominated from January 1998 onward. Landmarks prior to 770 and Points of Historical Interest may be listed through an action of the State Historical Resources Commission.

6 Public Resources Code 21083.2 (g) defines a unique archaeological resource to be: An archaeological artifact, object, or site, about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria: (1) contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information; (2) has a special and particular quality such as being the oldest of its type or the best available example of its type; or (3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

found. If the remains are determined by the coroner to be Native American, the Coroner is responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to Section 5097.98, will immediately notify those persons it believes to be most likely descended from the deceased Native American so they can inspect the burial site and make recommendations for treatment or disposal.

8.3.2.3 Local Policies

8.3.2.3.1 Stanislaus County

The Stanislaus County General Plan (October 1994) Chapter 3 (Conservation/Open Space Element) presents Goal Eight (Preserve areas of national, state, regional, and local historical importance). Goal Eight defines its purview as:

Landmarks of historical consequence not only include old schoolhouses and covered bridges, but also such sites as Native American burial grounds, cemeteries, pottery, rock carvings, and rock paintings. Normally, “sensitive” areas are often located near natural watercourses, springs or ponds, or on elevated ground. However, due to the silt build-up in the valley and the meandering of rivers, archaeological and historical sites may be found in unsuspected areas.

Goal Eight lists six Implementation Measures:

1. The County shall continue to utilize the Historical Site (HS) zone in Knight’s Ferry and La Grange to protect the historical character of the communities. Responsible Departments: *Planning Department, Planning Commission, Board of Supervisors.*
2. The County shall seek input from the Knight’s Ferry Municipal Advisory Council concerning any development proposals in the HS zone in Knight’s Ferry. Responsible Departments: *Planning Department, Historical Sub-Committee of the Planning Commission, Planning Commission, Board of Supervisors.*
3. The County shall work with the County Historical Society and other organizations and interested individuals to study, identify, and inventory archaeological resources and historical sites, structures, buildings, and objects. Responsible Departments: *Parks and Recreation.*
4. The County will cooperate with the State Historical Preservation Officer to identify and nominate historical structures, objects, buildings, and sites for inclusion under the Historic Preservation Act. Responsible Department: *Parks and Recreation.*
5. The County shall utilize the California Environmental Quality Act (CEQA) process to protect archaeological or historical resources. Most discretionary projects require review for compliance with CEQA. As part of this review, potential impacts must be identified and mitigated. Responsible Departments: *Planning Department, Parks and Recreation, Planning Commission, Board of Supervisors.*
6. The County shall make referrals to the Office of Historic Preservation and the Central California Information Center as required to meet CEQA requirements. Responsible Department: *Planning Department.*

8.3.2.3.2 City of Turlock

The City of Turlock's General Plan/Zoning Ordinance does not specifically include cultural resources.

8.3.3 Affected Environment

Cultural resources are traces of human occupation and activity. In Central California, cultural resources extend back in time for at least 11,500 years. Written historical sources tell the story of the past 200 years. Archaeologists have reconstructed general trends of prehistory. A cultural resources field inventory of the project area located potentially significant cultural resources within the project's Area of Potential Effect (APE). Contact with the NAHC did not result in the identification of traditional cultural properties in the project area.

Previous cultural resource studies conducted within a 1.0-mile radius of the proposed WEC site were reviewed. A discussion of the cultural resources sites in conflict with, or in potential conflict with, project elements (plant site, pipelines, transmission lines, etc.) are addressed in Subsection 8.3.4. The following elements are included in the WEC project and its area of potential effect:

- 250-MW generation plant site
- Gas Pipeline Route
- Recycled Water Pipeline Route
- Potable Water Pipeline Route
- 115-kV and 69-kV Transmission Line Routes

8.3.3.1 Natural Environment

The WEC project site is located within the San Joaquin Valley, the southern half of the physiographic province known as the Great Valley—an elongated trough about 400 miles long and 50 miles wide. Between the Mesozoic and Cenozoic eras, it was a shallow marine embayment containing numerous lakes. The upper levels of the Great Valley floor are composed of alluvium and flood materials.

The San Joaquin River is the main hydrologic feature, and annual rainfall in the project area ranges between 6 and 14 inches per year. Winters are cooler and drier than those in the Sacramento Valley, and snow is not common. Summers are generally hot and dry with temperatures often exceeding 100 degrees Fahrenheit (°F).

The San Joaquin Valley is structured by a series of faults and folds including the Buena Vista Thrust, Kern Front, and White Wolf faults (Norris and Webb 1990:240). Marine formations of the Cretaceous and Miocene overlie either chert or granite. Alluvium and sand deposited during the Holocene form the upper strata of the valley floor and comprise the primary sediments found within the project area. The project area itself lies on open, gently sloping terrain.

Prior to the development of valley agriculture, marshy wetlands surrounding sluggish waterways supported marshy or aquatic communities of tule (*Scirpus* sp.), cottonwood (*Populus fremontii*), sycamore (*Platanus racemosa*), and willow (*Salix* sp.) (see Wallace 1978a:448-449). Sparse oak groves occurred along some waterway and likely included interior live oaks (*Quercus wislizeni*) and valley oaks (*Q. lobata*) thus providing a portion of

the vegetal food sources utilized by prehistoric populations. The San Joaquin River is located about 7 miles southwest of the WEC plant site, and the Tuolumne River is located about 12 miles northeast of WEC. The project area lies within the Lower Sonoran Zone (Merriam 1898) as described by Holland (1986).

Euro-American settlement has altered the variety of nondomesticated animal species found in the area. Larger mammals such as black bear (*Ursus americanus*), black-tailed deer (*Odocoileus hemionus*), mule deer (*O. Heminous hemionus*), and mountain lion (*Felix concolor*) are now limited to the surrounding foothills and mountains. Tule elk (*Cervus elaphus nannoides*) and pronghorn (*Antilocapra americana*), once common throughout the valley, now exist in limited locations around the state (Jameson and Peeters, 1988:220, 225). According to Wallace (1978a:449), tule elk and pronghorn were a major food source for the Yokut Indians, later explorers, trappers, and settlers. Other animals found in the area include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), California ground squirrel (*Spermophilus beecheyi*), and pocket gopher (*Thomomys bottae*).

The marshy wetlands once common in the vicinity area provided a rich habitat for migratory waterfowl such as the mallard duck (*Anas platyrhynchos*), northern pintail (*A. acuta*), and green-winged teal (*A. crecca*) currently found in the valley. Other birds include the northern flicker woodpecker (*Colaptes auratus*), great blue heron (*Ardea herodias*), red-tailed hawk (*Buteo jamaicensis*), belted kingfisher (*Ceryle alcyon*), and red-winged blackbird (*Agelaius phoeniceus*). The San Joaquin River once supported anadromous and freshwater fish including salmon (*Oncorhynchus* sp.), golden trout (*Salmo aguabonita*), river lamprey eel (*Lampetra ayresi*), and white sturgeon (*Acipenser transmontanus*).

The present-day environment consists of industrial complexes, pastures, and both fallow and cultivated fields. Most of the roadsides are fringed by dense borders of native and introduced grasses and forbs. The former scrub brush and alkali flats that once dominated the lowlands along the San Joaquin River have been greatly reduced by land reclamation. Plants associated with valley saltbush scrub (Holland 1986), including saltbush (*Atriplex polycarpa*) and ruderal species such as annual sunflower (*Helianthus annuus*), red brome (*Bromus madritensis* ssp. *Rubens*), ripgut grass (*Bromus diandrus*), Russian thistle (*Salsola tragus*), and prickly lettuce (*Lactuca seriola*), can still be found in the project vicinity.

8.3.3.2 Prehistoric Background

The WEC project area is situated in an area of low to moderate archaeological sensitivity. As explained by Napton (1998:6) for the TID's Industrial-Walnut 69-kV line study, located in the same project area:

The results of the project-specific archaeological records search, historical literature search, and the general pattern of prehistoric and historical occupation of the Central Valley indicates that the proposed project area is in an environment considered to be of low to moderate sensitivity in respect to its potential to contain cultural resources.

Several investigators have contributed to our understanding of the prehistory of the Central Valley including Beardsley (1948, 1954), Heizer (1949, 1978), Moratto (1984), Napton (1981), Ragir (1972), and Schenck and Dawson (1929). The earlier investigations were conducted by Hewes (1941), Schenck (1926), and Schenck and Dawson (1929). Later investigations were conducted by Fenenga (1970); Heizer (1974); Johnson and Schulz (1980); Lillard, Heizer, and

Fenenga (1939); and Olsen and Wilson (1964). The first archaeological investigations in the Central Valley started in the Delta where, from 1880 to 1906, James M. Barr excavated numerous mound or burial sites.

The archaeology of Stanislaus County was reviewed by Napton (1981). Hewes' (1941) pioneering archaeological survey in the Central Valley resulted in recordation of several sites in Merced and Stanislaus Counties. In the extreme northern part of Stanislaus County, about 30 miles north of the WEC area, are numerous cultural manifestations attributed to the "Farmington Complex," which was considered by Treganza and Heizer (1953) to be an ancient lithic industry. Farmington Complex sites are of two types: village sites with crude flake and core tools and "Farmington Complex" quarry-workshops (Moratto 1984; Treganza 1952). The latter exhibit numerous rather crude implements fashioned on greenstone or green chert.

Recently, L.K. Napton conducted a series of excavations in the Farmington locality at CA-STA-00044, reported in part by Nelson (1984). Limited excavations have been conducted elsewhere in the county. Decater (1985) excavated CA-STA- 0167/H at Knights Ferry, recovering several inhumations and artifacts that suggested that the site was the location of human activity for over 2,500 years and may date to as early as 3,000 years BP. Decater concluded that the site contained evidence of "three, possibly four prehistoric occupations and Native American and Euro-American historic use."

The Northern Valley Yokuts probably entered the region more recently than their southern relatives. Artifacts recovered from four archaeological sites near the delta of the Sacramento and San Joaquin rivers are similar to materials associated with Phase 2 of the Late Horizon described by Bennyhoff and Heizer (1958), which has been dated to circa A.D. 1500 (Wallace, 1978b).

A three-part cultural chronological sequence, the Central California Taxonomic System (CCTS), was developed by archaeologists to explain local and regional cultural change in prehistoric central California from about 4,500 years ago to the time of European contact (Lillard, Heizer, and Fenenga 1939 and Beardsley 1948, 1954). In 1969, several researchers who met at UC Davis worked out several substantive taxonomic problems that had developed with the CCTS. Table 8.3-2 summarizes David Fredrickson's (1994) cultural periods model and provides CCTS classification nomenclature (such as "Early Horizon," etc).

Moratto (1984) suggests the Early Horizon dated to circa 4,500 to 3,500/3,000 years ago with the Middle Horizon dating to circa 3,500 to 1,500 years ago and the Late Horizon dating to circa 1,500 to 250 years ago. The Early Horizon is the most poorly known of the period with relatively few sites known or investigated. Early Horizon traits include hunting, fishing, use of milling stones to process plant foods, use of a throwing board and spear ("atlatl"), relative absence of culturally affected soils (midden) at occupation sites, and elaborate burials with numerous grave offerings.

Middle Horizon sites are more common and usually have deep stratified deposits that contain large quantities of ash, charcoal, fire-altered rocks, and fish, bird, and mammal bones. Significant numbers of mortars and pestles signal a shift to plant foods from reliance on hunted animal foods. Middle Horizon peoples generally buried their dead in a fetal position, and only small numbers of graves contain artifacts (and these are most often utilitarian). Increased violence is suggested by the number of burials with projectile points embedded in the bones or with other marks of violence.

TABLE 8.3-2
Hypothesized Characteristics of Cultural Periods in California

1800 A.D. Upper Emergent Period Phase 2, Late Horizon	Clam disk bead money economy appears. More and more goods moving farther and farther. Growth of local specializations relative to production and exchange. Interpenetration of south and central exchange systems.
1500 A.D. Lower Emergent Period Phase 1, Late Horizon	Bow and arrow introduced, replace atlatl and dart; south coast maritime adaptation flowers. Territorial boundaries well established. Evidence of distinctions in social status linked to wealth increasingly common. Regularized exchanges between groups continue with more material put into the network of exchanges.
1000 A.D. Upper Archaic Period Middle Horizon Intermediate Cultures	Growth of sociopolitical complexity; development of status distinctions based on wealth. Shell beads gain importance, possibly indicators of both exchange and status. Emergence of group-oriented religious organizations; possible origins of Kuksu religious system at end of period. Greater complexity of exchange systems; evidence of regular, sustained exchanges between groups; territorial boundaries not firmly established.
500 B.C. Middle Archaic Period Middle Horizon Intermediate Cultures	Climate more benign during this interval. Mortars and pestles and inferred acorn economy introduced. Hunting important. Diversification of economy; sedentism begins to develop, accompanied by population growth and expansion. Technological and environmental factors provide dominant themes. Changes in exchange or in social relations appear to have little impact.
3000 B.C. Lower Archaic Period Early Horizon Early San Francisco Bay Early Milling Stone Cultures	Ancient lakes dry up as a result of climatic changes; milling stones found in abundance; plant food emphasis, little hunting. Most artifacts manufactured of local materials; exchange similar to previous period. Little emphasis on wealth. Social unit remains the extended family.
6000 B.C. Upper Paleo-Indian Period San Dieguito Western Clovis 8000 B.C.	First demonstrated entry and spread of humans into California; lakeside sites with a probable but not clearly demonstrated hunting emphasis. No evidence for a developed milling technology, although cultures with such technology may exist in state at this time depth. Exchange probably ad hoc on one-to-one basis. Social unit (the extended family) not heavily dependent on exchange; resources acquired by changing habitat.

The Late Horizon emerged from the Middle Horizon with continued use of many early traits and the introduction of several new traits. Late Horizon sites are the most common and are noted for their greasy soils (midden) mixed with bone and fire-altered rocks. The use of the bow and arrow, fetal-position burials, deliberately damaged (“killed”) grave offerings and occasional cremation of the dead are the best known traits of this horizon. Acorn and seed gathering dominated the subsistence pattern with short and long-distance trade carried out to secure various raw materials. Compared to earlier peoples, Late Horizon groups were short in stature with finer bone structure—evidence perhaps of the replacement of original Hokan-speaking settlers by Penutian-speaking groups by circa 1,500 years ago.

Another scheme proposed by Chartkoff and Chartkoff (1984), shown in Table 8.3-3, is also used.

TABLE 8.3-3

The Chartkoff and Chartkoff (1984) Model of Cultural Periods in California

Pre-Archaic Period - 11500-9000 B.C.

Pre-Archaic populations were small and their subsistence included big-game hunting of now extinct mammoth and mastodon. Research indicates that the Pre-Archaic economies were based on a wide-ranging hunting and gathering strategy, dependent to a large extent on local lake-marsh or lacustrine habitats.

Early to Middle Archaic Period - 9000-4000 B.C.

During the Early and Middle Archaic periods, prehistoric cultures began putting less emphasis on large-game hunting. Subsistence economies probably diversified somewhat, and Archaic-era people started using such ecological zones as the coast littoral more intensively than before. Advances in technology (milling stones) indicate that new food processing methods became important, enabling more efficient use of certain plant foods, including grains and plants with hard seeds.

Late Archaic Period - 4000-2000 B.C.

An important technological advance was the discovery of a tannin-removal process for the abundant and nutritious acorns. Prehistoric trade networks developed and diversified, bringing raw materials and finished goods from one region to another. Resource exploitation, as during the Early and Middle Archaic, was generally seasonal. Bands moved between established locations within a clearly defined/defended territory, scheduling resource harvests according to their availability. Clustering of food resources along the shores of large lakes or the banks of major fish-producing rivers allowed for larger seasonal population aggregates. Dispersed resources, such as large and small game, during the winter prompted small family groups to disperse across the landscape for more efficient food harvesting. The spear thrower (atlatl) may have been introduced or increased in importance, accounting for a change in projectile point styles from the Western Stemmed to the Pinto and Humboldt series. Seed grinding increased in importance.

Early and Middle Pacific Periods - 2000 B.C.-A.D. 500

The Pacific Period is marked by the advent of acorn meal as the most important staple food. Increasing population densities made it desirable and necessary for Indian populations to produce more food from available land and to seek more dependable food supplies. The increasing use of seed grinding and acorn leaching allowed for the exploitation of more dependable food resources; increased use of previously neglected ecological zones (the middle and high Sierran elevations) may also have been part of this trend.

Late Pacific Period – A.D. 500-1400

Around A.D. 500 – 600, a cultural watershed was triggered by the introduction of the bow and arrow, which replaced the spear thrower and dart as the hunting tool/weapon of choice. The most useful time markers for this period tend to be small projectile points/arrow tips. Another trend is the marked shift from portable manos/metates to bedrock mortars/pestles (Moratto 1984). Moratto et al. (1978) demonstrated that this was a time of cultural stress, during which trading activity abated, warfare was common, and populations shifted away from the Sierra Nevada foothills to higher mountain elevations. They explain these changes in terms of rapid climatic fluctuations, including a drier climate and a corresponding shift of vegetation zones.

Final Pacific Period - A.D. 1400-1789

Populations became increasingly sedentary and depended more on staple foods, even as the diversity of foods exploited increased. Permanent settlements with high populations were more common. Every available ecological niche was exploited, at least on a seasonal basis. Other trends included the resurgence of long-distance trade networks and the development of more complex social and political systems.

8.3.3.3 Ethnographic Background

The WEC project facilities are located in the territory of the Northern Valley Yokuts (Wallace 1978b). Figure 8.3-2 provides a representation of the ethnographic background for the project area.

The Yokuts comprised some 60 or more tribal groups that lived throughout interior Central California; and they traded with each other and with other groups west of the Coast Range and east of the Sierra Nevada. Family groups and individuals traveled up and down the state, trading with neighboring groups to the north and south. Their hunting and gathering lifeways involved use of a broad range of natural resources the prehistoric environment had to offer. Aspects of the material culture and cultural geography of the Yokuts can be found in Kroeber (1925), Gayton (1948), and Latta (1977). Wallace (1978a,b) and Spier (1978) provide summaries of the general subsistence and settlement patterns of these Yokuts groups as recorded in the early 20th century.

Trade was well-developed, with mutually beneficial interchange of needed or desired goods. Obsidian, rare in the valley, was obtained by trade with Paiute and Shoshoni groups on the eastern side of the Sierra Nevada, where numerous sources of this material are located, and perhaps came also from Napa Valley to the north. Shell beads, obtained by the Yokuts from coastal people, and acorns, rare in the Great Basin, were among the many items exported to the east by Yokuts traders (Davis 1961).

Economic subsistence was based on the ubiquitous acorn, with substantial dependency on gathering and processing of wild seeds and other vegetable foods. The rivers, streams, and sloughs that formed a maze within the valley provided abundant food resources, such as fish, shellfish, and turtles. Game, wildfowl, and small mammals were trapped and hunted to provide protein augmentation of the diet. In all, the eastern portions of the valley provided a lush environment of varied food sources, and the estimated large prehistoric population reflected this abundance (Cook 1955; Baumhoff 1963).

Settlements were oriented toward the water resource, with major villages situated near waterways that provided not only reliable water supplies but substantial food sources. Houses varied in size and shape (Latta 1949; Kroeber 1925), with most constructed from the readily available tules found in the extensive marshes of the low-lying valley areas. Housepit depressions, still extant in the protected areas of the San Joaquin Valley, range in diameter from 3 to 18 meters. Depression depths reach 60 cm below the surrounding surface. The Yokuts of the interior valley, somewhat removed from the coastal incursions of the Spanish, maintained a large degree of cultural cohesiveness until the early 1820s.

The lifeways of the Yokuts were dramatically altered in the 1700s by Spanish explorers and missionaries who entered the valley. The introduction of Euro-American lifeways and new diseases proved devastating to the native population – traditional lifestyles were diminished and numerous people died from disease (Moratto 1988).

According to Latta (1977), the territory in which the proposed project is located was formerly occupied by the Northern Valley Yokuts, and is somewhat north of the area occupied by the *Ausumne* tribelet. Latta (1977) states that John Fremont found the *Ausumne* on the Merced River, presumably upstream from Livingston, possibly near present-day Exchequer Dam. Sam Ward (Collins 1949) also mentions Yokuts along the Merced River, but there is a dearth of specific information regarding Native American occupation of the Turlock area. Tatum and Myers (1996) suggest the closest tribelet to the project area would be the group living near the Tuolumne River (the *Tauhamlamnes*).

8.3.3.4 Historical Background

Recorded history in Central California can be divided into three periods: the Spanish Period (1769-1821), the Mexican Period (1821-1848), and the American Period (1848-present).

8.3.3.4.1 Spanish Period

The first recorded penetration of the southern San Joaquin Valley was accomplished in 1772 by Pedro Fages whose written record describes the Valley as “a labyrinth of lakes and tulares in the middle of a great plain” (Wedel 1941). The next most important penetration of Euro-Americans were Spanish explorers led by Lieutenant Gabriel Moraga in 1806. Moraga and his party tried to locate new lands for missions, find and return fugitive neophytes to the coastal missions, and relocate stolen livestock.

Distance and difficult terrain restricted mission activities to coastal areas, but disruption of the native culture became increasingly severe. Mission Indians fleeing the restrictive and unfamiliar life of the missions introduced new ideas and tools. Population shifts, prompted by the eastward retreat of Indians closer to the missions, forced adjustments in territorial boundaries with concomitant movement into the eastern foothills. The three missions that most affected the Indians living along the banks of the San Joaquin, Stanislaus, and Tuolumne Rivers were Mission San Francisco de Asis (built in 1776), San Jose de Guadalupe (1797), and San Juan Bautista (1797).

By the early 1820s, mission expansion in California ended as a result of Mexico's independence from Spain. It was also during this time that fur trappers discovered the California interior and began their forays into the San Joaquin Valley. Jedediah Smith may have been the first to enter the Central Valley during a fur trapping expedition in 1827. Smith's adventures included friendly encounters with the Southern Yokuts near the Kings River and trapping and camping along the San Joaquin River. Other trappers such as Kit Carson, Peter Skene Ogden of the Hudson's Bay Company and Joseph Reddeford Walker followed Smith until about 1837, when fur-bearing animals had been depleted.

8.3.3.4.2 Mexican Period

Spanish colonial occupation of Alta California ended with the 1821 Mexican takeover. The Mexicans did not systematically explore the region to any significant extent. In 1833, there was a revolt against Franciscan rule in Alta California resulting in the complete secularization of mission lands. It was during this period that most significant cultural deterioration took place amongst the Yokuts. Native peoples had no natural immunity to introduced diseases, and nearly 75 percent of the Valley Yokuts population succumbed in the early 1830s to an illness Cook (1955) believes was malaria.

Between 1833 and 1845, some remnant bands of economically desperate Yokuts conducted raids against the coastal missions west of the Diablo Range. To mitigate the effects of Indian raiding against their wealthy coastal missions and ranchos, the Mexican government began awarding large land grants in the Sacramento-San Joaquin Valley region in the late 1830s with the hope that these ranchos would serve as frontier buffers. By the mid-1840s, several large land grants were made encompassing most all of the lands bordering the San Joaquin River from Stockton to Fresno (Beck and Haase 1974). Mexican land grants (1822-1846) were awarded in the Central Valley, five of which were in Stanislaus County: Thompson's Rancho, Rancheria del Estanislao, El Pescador, Rancho del Puerto, and Orestima (Beck and Haase 1988).

Yokuts Indian raids on mission and rancho herds led to a major engagement between the Mexican military and the Yokuts living along the Stanislaus River. The Indian leaders were *Cipriano* of Mission Santa Clara and *Estanislao* (for whom Stanislaus county and river are named) of Mission San Jose. They made their headquarters in a village along the *Rio del Laquisimes* (Stanislaus River)(Gooch 1988). Accounts of the conflict are provided in Gray and Brotherton (1976) and Gooch (1988).

Increasingly bad relations between the U.S. and Mexico led to the Mexican/ American War of 1847, which resulted in Mexico releasing California to the U.S. under the 1848 Treaty of Guadalupe Hidalgo.

The discovery of gold in the Sierra foothills attracted large numbers of miners in the years following 1848. Foothill-dwelling Indians who had retained a modicum of protection from white domination and culture change were driven from their homes along the streams and rivers. Forced to retreat to marginal lands, starvation, disease, and outright conflict soon completed the cycle. The decline of mining was soon followed by a shift of attention to the rich agricultural promise of the valley. The remaining valley Yokuts were pressured from the lands they held, usually those of highest farming potential, and driven into the mountains.

8.3.3.4.3 American Period

As summarized by Napton (1998), John Marshall's gold discovery in January 1848 triggered thousands of Argonauts to the Central Valley and adjacent Sierra Nevada foothills to exploit the "Mother Lode" region. One of the indirect but far-reaching consequences of the gold rush was the occupation of strategic points by ferry operators, storekeepers, inn keepers, and others who busied themselves supplying the ever-hopeful miners with goods and services. Numerous ferries were operated along the San Joaquin and its tributaries, but most of them appeared and disappeared during the course of a few decades as the influx of miners dwindled.

During the 1850s, people began settling in the Central Valley after realizing that they could make a better living supplying mining camps with meat, horses, and other products than by actually mining. The more productive parts of the valley were rapidly settled. By 1874, much of the Central Valley was devoted to wheat, and the remaining grasslands were occupied by vast herds of cattle. As controlled irrigation developed in the Central Valley the former land grants were broken up into many small farms. With the coming of railroads, the valley began to take on its present densely settled, highly productive aspect (Gooch 1988).

Agriculture became increasingly efficient with the four-share gang plow (1860), harrows (1866), disc cultivators, and the steam tractor (1873) (Smith 1984). By 1872, railroads provided access to distant markets, and the Central Valley was well on its way to becoming one of the great food-producing regions of the U.S. Intensive agriculture depended on flood control and irrigation; impounding Sierra Nevada snowpack melt-water behind dams was critical in this regard (Hohenthal 1972). The move toward organized irrigation systems began in 1871 and by 1897 the Turlock Irrigation District was founded.

The history of Stanislaus County appears in several sources including Branch (1881), Brotherton (1979, 1982), Elias (1924), Gooch (1988), Hoover, et al. (1966), Ruppel (1946), and Tinkham (1921). The most important works are by Hohenthal et al. (1972), which provides a good outline of the history of the Turlock area from 1871 through 1971 followed by Gooch

(1988). Schacht (1973) summarized pertinent highlights of Turlock's development based on his review of Hohenthal's book:

The first settlers were ex-trappers and disappointed gold miners or those farsighted enough to see greater lodes in the rich soil of the Valley than in the hill placers. In 1846, J.W. Laird ran cattle on the south side of the Tuolumne River. It was open free range then. Laird and his partners sold stock to the mines for six ounces of gold for a beef, three ounces for a calf. People kept settling there and in three years Laird set up a private school for 12 children. Still it was a wild, remote area. The ground was incredibly rich, but there was little move toward farming it until the great flood of 1862, which drowned thousands of head of stock. That was followed by the shriveling drought of 1864. Stockmen began planting a little grain to help feed their herds when natural feed failed. Then within a few years in the early 1860s, farmers swarmed into the Valley, forced stockmen to buy the land they had been using for free, and by the latter years of the decade carpeted Stanislaus county with wheat. The railroad came. Land sales boomed. Great wheat-raising properties dominated the area. For the next 30 years grain was the foundation of a burgeoning agriculture.

Turlock, named for a bay in the British Isles, was founded by John W. Mitchell, the location determined by its convenience for shipping grain on the new Central Pacific. It began to grow parallel to the tracks. The farmers soon realized that irrigation was the key to successful production. That led in the late '80s to the creation of the Turlock Irrigation District, the legal wrangles which took its fate as far as the U.S. Supreme Court, and construction of a dam on the Tuolumne near LaGrange with canals and laterals leading from it. With the coming of water in the canals, Turlock's future was set. But it takes people to make things happen and Turlock has been blessed with a remarkable variety of them. The Swedes flocked there in the early 1900s. The Portuguese, fine dairymen, starting coming about the same time. In 1911 the first of the Syrians arrived. The Japanese came soon after and the Mexicans around the same time. All these and other nationalities as well have contributed to Turlock's progress.

8.3.3.5 Resources Inventory

The WEC project site and linear facilities were subject to cultural resources inventory by CH2M HILL. This inventory is based on both archive/background research and surface pedestrian reconnaissance survey. The results of the resource inventory are presented in the subsections below.

8.3.3.5.1 Research Design

Research designs for cultural resource studies in Stanislaus County and adjacent parts of the Central Valley have been formulated by Moratto (1981), Napton (1981 and 1998), and Moratto et al. (1988). Research goals specific to the WEC include locating historical cultural resources within the project area and assessing their significance pursuant to criteria of the NRHP and the CRHR, pursuant to the CEQA.

As noted by Napton (1998), there are several research domains applicable to prehistoric and historical cultural resources in the Turlock vicinity: (1) inventory of sites by functional type, time of occupation, and size; (2) descriptions of individual sites; (3) explication of the culture

history of the project area; (4) description of site density by cultural periods; (5) estimates of population density by cultural periods; (6) explication of cultural change relative to environmental variation; (7) description of social organization by cultural periods; (8) descriptions of land use patterns through time; (9) descriptions of resource utilization through time; (10) descriptions of inter- and intra-regional cultural contacts through time; and (11) descriptions of inter/intra-regional trade relationships through time.

The types of cultural resources likely to be present in the project vicinity include prehistoric and historic archaeological sites, features, and artifacts. Prehistoric archaeological sites usually reveal themselves in surface or subsurface contexts features, artifacts, and ecofacts often occurring on, or in, human-affected sediments (anthropic deposits or “midden”). Such deposits are often darker in color than surrounding soil; and they are rich in calcium, nitrogen, and phosphorous left behind from the accumulation of waste, garbage, and other culturally created debris. Prehistoric archaeological sites often contain animal bone, shell, charcoal, and other refuse, as well as flaked, polished, ground stone tools, potsherds, and “cooking stones” as well as burials (inhumations) (Napton 1998). Prehistoric archaeological remains may include isolated or associated artifacts such as projectile points, knives, scrapers, awls, hammerstones, lithic debitage, beads, milling implements, potsherds, and baked clay objects. Sites may also contain structural features such as housepits, ceremonial lodges, sweatshouses, and fish traps; bedrock milling stations, hunting sites, rock art, quarries, trails, and isolates; and subsurface remains such as inhumations, caches of artifacts, or buried features.

Historical archaeological remains are important sources of information (Schuyler 1978; South 1977). Historical sites, features, and artifacts may include buildings, foundations, prospects and mines, roads, trails, bridges, blacksmith and machine shops, windmills, wells, orchards, fences, corrals, survey monuments, graves or cemeteries, settlements of ethnically affiliated groups, vernacular architecture, and a host of other types of remains (see Orser and Fagan 1995).

8.3.3.5.2 Archival Research

CH2M HILL commissioned a detailed record search by staff (Robin Hands) of the California Historical Resources Information System (CHRIS) Central California Information Center (California State University, Stanislaus) for the WEC project (CCIC File Nos. 4620N and 4697N) using a very generous definition of “project area” (e.g., one-mile plus buffer zone around project site and linear features). According to information available in the CHRIS files, there have been eight previous cultural resource surveys conducted within the “project area” (a copy of the CHRIS-annotated USGS quadrangle maps is provided to the CEC as a Confidential Appendix 8.3D; see also Table 8.3-4). Within or adjacent to this rather generous CH2M HILL-defined “project area” are no recorded cultural resources. There are no historic properties listed in, or determined eligible for listing in, the NRHP (nor in the CRHR, the California Inventory of Historic Places, the California Points of Historic Interest, or California State Historic Landmarks).

Eight individual cultural resource investigation reports were provided by CHRIS for the “project area.” In some cases, these previous investigations partly overlap WEC linear facility corridors; Confidential Appendix 8.3D illustrates the locations/footprints of previous investigations. Arranged in ascending order as cataloged by CHRIS, the reports listed in Table 8.3-4 were reviewed for information pertinent to the WEC project. Five copies of these reports are submitted to the CEC as Confidential Appendix 8.3E.

TABLE 8.3-4

Authors (Dates) and CHRIS Catalog Number for Cultural Resource Investigation Reports

Chavez (1976) – CCIC-859	Hatoff (1995a) – CCIC-2759
Napton (1991) – CCIC-915	Napton (1998) – CCIC-3395
Napton (1989) – CCIC-908	Nave (1999) – CCIC-3630
Peak (1975) – CCIC-1643	Jensen (2000a, 2000b, 2000c) – CCIC-3997, C-3998, C-4074

Potential Resources

P-50-00083 (P-39-00015/CA-SJO-256H) (See Appendix 8.3F.) The Tidewater Southern Railroad (TSRR) which lies less than 300 feet to the north of the proposed plant site, has been recorded in other parts of Stanislaus County as P-50-00083 (Napton 1994) and in portions of San Joaquin County (Hatoff 1995b) as P-39-00015 (CA-SJO-256H). In the immediate project vicinity, the TSRR has not yet been recorded. Neither portions of the TSRR investigated by Napton (1994) and Hatoff (1995b) were determined to be NRHP- or CRHR-eligible.

Guido (1950) discussed the history of the TSRR. The Tidewater Southern began operations as an interurban electric railway to serve a route projected to extend from Stockton south along the San Joaquin Valley. On October 4, 1910, the Tidewater and Southern Railroad was incorporated and soon it constructed railroad grade to a point about 4 miles south of Modesto. The Tidewater and Southern consolidated in 1912 with another company (Tidewater and Southern Transit) and then operated under the name Tidewater Southern Railway (Napton 1994).

The new railroad accelerated construction during 1912 and opened for service 32.23 miles of electric railway between Taylor Street in Stockton and the downtown Modesto passenger terminal. Operated as a freight feeder system, the railroad connected with the Western Pacific Railroad (WPRR) at Manteca Junction some 3 miles north of Manteca. The TSRR gradually expanded its operations in 1916 by opening a 16-mile extension from Modesto into Turlock. The extension of electrification failed to materialize and the interurbans never operated south of Modesto.

In 1907, W.A. Irwin promoted construction of a townsite south of Turlock, to be called Irwin City. The TSRR proposed to run its line through Irwin City to Fresno, but the residents of Irwin demurred, so the railroad encouraged development of an alternative townsite to the north, called Hilmar. The latter was founded and Irwin soon faded away.

According to Hohenthal et al. (1972) and Shireman (1970), the TSRR line was electrified as far as Modesto, steam locomotives being used on the 28-mile run south to Hilmar. The southward extension of the railroad was attractive to the WPRR, and in 1917 that company bought the majority of stock in the TSRR. A 10-wheel locomotive was operated on the line, and branch lines were constructed during this period for freight service. These included an 8-mile extension to Hilmar (south of Turlock), opened in 1917, and a 6.6-mile branch to Manteca, opened in 1918. It was planned to extend service from Nile Garden near Manteca south down the San Joaquin Valley as far as Bakersfield, but this ambitious scheme never materialized (Napton 1994).

Incrementally, the WPRR transformed the TSRR from its original electric interurban configuration to a conventional feeder railroad. The line's passenger service was discontinued in 1932, and the WP began dismantling the electric overheads along the mainline between Stockton and the northern limits of Modesto.

After World War II, the WPRR began to upgrade the mainline long-haul freight traffic and abandoned some of its branches. The WPRR brought in new diesel locomotives for the Tidewater Southern, some of which were used on the Sacramento Northern Western Pacific subsidiary as well. This heavier equipment required a heavier rail, and virtually all of the track was replaced after 1945 (Guido 1950). In time, the TSRR abandoned its Manteca Branch, but the line is still actively used along the Modesto to Stockton mainline as well as the Turlock Branch.

Potential Historic Resource—Historic Road. Review of historic U.S. Government Land Office maps (USGLO 1853a) shows a road passing through the SE quarter of Section 31 (T 5 S, R 10 E), crossing what is now Washington Road, passing through Sections 21, 28, 29, and 32 (T 5 S, R 10 E), crossing what is now Linwood Avenue (between Kilroy Road and Tegner Road), and crossing Kilroy Road (between Linwood Avenue and Walnut Avenue).

Potential Historic Resource—Historic Canal. Review of available USGS maps show the proposed natural gas supply pipeline crossing Turlock Irrigation District's (TID's) Lateral No. 5 (parallels Harding Road). Lateral No.5 and the rest of the TID canal system is illustrated on a map figure in the book *Land, Water and Power: A History of the Turlock Irrigation District 1887-1987* (Paterson 1989). The main canals and laterals were all completed by late 1900 (Paterson 1989). The arrival of irrigation water was crucial in local agricultural development:

The visible evidence of irrigation included not only the new houses, barns, orchards and towns dotting the landscape, but the network of ditches running from the river to the fields. The first job that greeted the irrigation settlers was getting their land ready to receive water that had drawn them there. Among other things that usually meant building the ditches that linked their farms to the district's works. The Turlock Irrigation District built and maintained only the main canals and widely spaced laterals, which constituted the central skeleton of a water distribution system. Except for a fortunate few whose property adjoined a canal and could be served directly from a sidegate in it, farmers depended on the so-called community ditch system to connect their farms to the water supply. The community ditches—hundreds of miles of them—were built and maintained by the irrigators using them, usually without any formal organization (Paterson 1989:122).

Until the late 1930s, concrete lining predominated improvement work and even in 1939-1940 less than 20 miles of the 132 miles of improved community ditches had pipelines. In the 1944-1945 season, however, a short stretch of lining was torn out to make way for pipelining and the trend continued. By 1951, the improvement districts had more miles of pipeline than lining.

In time, the ditches that had only been such a prominent part of the local landscape disappeared from large sections of the TID, their former course marked only by the presence of relief standpipes and gate structures of the underground lines (Paterson 1989:263-264).

8.3.3.5.3 Field Survey

A complete general reconnaissance for archaeological resources (after King, Moratto, and Leonard 1973) and the historic built environment was completed by CH2M HILL (James C. Bard, RPA; Jim Sharpe, M.S., and Robin McClintock, B.S.) on September 17, 18, and 20, 2002. Evaluation of potentially historic buildings and structures was conducted by Elizabeth Calvit, M.A.

Plant Site

The project site consists of 18 acres within a 69-acre parcel. The 18 acres includes the access road and 115-kV and 69-kV transmission lines and is located immediately south of the TSRR, east of Washington Road, north of Ruble Road, and west of South Tegner Road. The actual project site will be approximately 18 acres, including the access road off South Washington to the site. The proposed 115-kV and 69-kV transmission lines would be located within the 69-acre parcel. In addition, the construction laydown area will be located on the remaining 51 acres of the 69-acre parcel. The site is rectangular in shape and, at present, the entire acreage is used for agricultural purposes.

An irrigation system designed to provide water to the fields is currently in use. This system consists of a series of two supply lines and several weirboxes. Irrigation water for the fields at the plant site is supplied from Lateral No. 4 through the Vargas and White ditches (TID drawing #I/5-10/IRRI). An aerial photograph taken in 1937 (on file at TID) indicates that no homesteads were located at the plant site.

At the time of the survey, silage corn had recently been harvested. For completeness, a pedestrian archaeological survey was conducted for the 69 acres using 30-meter transects. Visibility was about 95 percent. No prehistoric or historic cultural remains were observed at the plant site.

Gas Line

The gas line for the facility will extend from the plant site west along the railroad tracks to South Commons Road, where it will head south to West Bradbury Road. At Bradbury Road it ties into the PG&E main pipeline, Line 215.

The entire route on both sides of the railroad tracks and Commons Road was heavily disturbed from previous construction and agricultural related activities. South Commons Road crosses over the irrigation canal Lateral No. 5. The gas line will pass either over or under Lateral No. 5 (see Potential Historic Resource—Historic Canal above). No evidence of the historic trail/road recorded on the GLO maps (see Potential Historic Resource—Historic Road above) was visible along this segment of the survey.

Recycled Water Route

The proposed recycled water route would extend from the WEC plant site south to Ruble Road. From Ruble Road it extends east to South Tegner Road. From South Tegner Road it extends south approximately 400 yards and then east along an existing electrical easement toward South Kilroy Road and the wastewater treatment plant. The length of the route is 1.6 miles. Ground disturbance was extensive for the route from construction and agricultural-related activities.

The potable water supply line follows the same route as the recycled water line from the plant site south to Ruble Road, then east to South Tegner Road. No cultural resources were observed along these routes.

8.3.3.5.4 Native American Consultation

CH2M HILL contacted the NAHC by letter on August 19, 2002, to request information about traditional cultural properties such as cemeteries and sacred places in the project area. The NAHC responded on September 5, 2002, with a listing of two Native American contacts for the general project area (persons or organizations of Miwok or Yokut heritage): Tuolumne Band of Me-Wuk (Reba Fuller) and Katherine Erolinda Perez. Each of these individuals/groups was contacted by letter on September 5, 2002. (See Appendix 8.3A). A summary of the results of consultations with the individual Native American organizations on the NAHC contact list will be included in a future filing.

The NAHC record search of the Sacred Lands file failed to indicate the presence of Native American cultural resources in the immediate project area. The record search conducted at the Central California Information Center of CHRIS for CH2M HILL (CCIC File Nos. 4620N and 4697N) failed to indicate the presence of Native American traditional cultural properties.

8.3.4 Environmental Consequences

This subsection describes the environmental consequences of proposed WEC construction. Although small portions of the WEC project area were previously surveyed by others, CH2M HILL conducted a complete survey of both previously surveyed areas and unsurveyed areas.

CH2M HILL conducted archival research, reviewed all cultural resource investigation reports within the WEC project area, contacted all other interested agencies, Native American groups, and historic societies, and conducted a complete field investigation. As a result of all these efforts, CH2M HILL did not detect within the project area any significant prehistoric or historic archaeological remains, or any historically or architecturally significant buildings. No impacts on architectural resources are expected to occur.

The natural gas pipeline crosses Lateral No. 5. This canal will either be crossed during the dry season or through use of a trenchless construction method such as jack and bore or horizontal directional drilling. While Lateral No. 5 is over 80 years old, as with all of TID's lined canals, routine maintenance is an ongoing activity needed to maintain water flows. Re-caulking or repairing/restoring the cement canal lining is commonplace. Any breaches of the canal that might be required in order to cross the canal would be restored. Such breach restoration would not produce any permanent physical harm to the canal; once it has been relined with grout, concrete, or gunite, it will appear and function exactly as it does today. Breach and restoration of a small portion of this miles-long historic linear canal feature will not affect its eligibility for inclusion in the HRHP or the CRHR because such routine relining operations of active irrigation canals don't diminish the historic values that may be associated with such historical canals.

8.3.5 Cumulative Effects

Because the WEC project would not affect known significant cultural resources, it would not likely cause significant cumulative impacts. If construction were to encounter a large, stratified, buried prehistoric archaeological site or discrete filled-in historic period features, the possibility of cumulative impacts would arise because such sites might be highly

significant, and many have been destroyed or damaged by agricultural activity and/or commercial/industrial/residential development in the project vicinity. Given the relative low level of impact to such a site that the project would cause, it is also possible that proposed project activities would not lead to significant cumulative impacts, depending on the extent of project impact to any such discovered archaeological deposits. Any potential impact to an unknown site would be minimized by a stop-work procedures if a site were uncovered. No impacts on architectural resources are expected to occur.

8.3.6 Mitigation Measures

The best mitigation strategy is to avoid impact on cultural resources that may be located in a given project area. Avoidance can be accomplished by having the archaeologist and project engineer demarcate cultural resource site boundaries on the ground to ensure that proposed project improvements do not impinge on the resource(s). Where a project facility must be placed within 100 feet of a known archaeological site, the site can be temporarily fenced or otherwise marked on the ground as an Environmentally Sensitive Area (ESA). Construction equipment can then be directed away from the ESA, and construction personnel directed to avoid entering the ESA.

Prior to starting construction near a designated ESA, the construction crew should be informed of the resource values involved and of the regulatory protections afforded to the resources through an employee training program. Though significant archaeological and historical sites were not found during project field survey conducted by CH2M HILL, it is remotely possible that subsurface construction could encounter buried archaeological remains. CH2M HILL recommends that appropriate measures be included in the conditions of certification that would require construction to stop if cultural resources are inadvertently discovered.

8.3.6.1 Pre-construction Subsurface Testing

Pre-construction testing is a form of enhanced survey in that surface survey cannot, in normal circumstances, result in reliable detection of buried archaeological sites. Subsurface testing, therefore, completes the survey by compensating for the presence of site-obscuring overburden. Pre-construction subsurface testing is not recommended because surface visibility in the WEC project area was good to excellent and there is little to no evidence to suggest that subsurface archaeological deposits are present in the project area.

8.3.6.2 Monitoring During Construction

Owing to the low archaeological sensitivity of the WEC project area and lack of any evidence of archaeological sites during the surface reconnaissance, CH2M HILL recommends that WEC construction may proceed as planned without implementation of monitoring during construction.

If the CEC determines that monitoring is required, qualified personnel consisting of a Project Archaeologist (PA) and an Archaeological Monitor (AM) would conduct the required monitoring. The PA and AM can be the same person, if properly qualified. Proper qualifications for a PA are the minimum qualifications for Principal Investigator on federal projects under the Secretary of the Interior's standards and guidelines for archaeology and historic preservation. The AM would have 5 years of experience in conducting archaeological field projects or hold a Bachelor's degree in anthropology, with an emphasis

in archaeology, and have at least 1 year of experience in conducting archaeological field projects. The AM would be qualified to detect archaeological deposits in the field. In addition to site detection, the PA would be qualified to evaluate the significance of the deposits, consult with regulatory agencies, and plan site evaluation and mitigation work.

Given the low archaeological sensitivity of the WEC project area and lack of any evidence of archaeological sites during the surface reconnaissance, CH2M HILL recommends that WEC construction proceed as planned without implementation of Native American monitoring during construction. If the CEC determines that Native American monitoring is required, an interested member of the Miwok Indian community can be retained either directly by the project Applicant or through the subconsultant conducting any required archaeological monitoring.

8.3.6.3 Construction Worker Sensitivity Training

CH2M HILL recommends implementation of a construction worker sensitivity training program to ensure implementation of CEC-approved stop-construction measures in the event that cultural resources are discovered during construction. A CEC-approved archaeologist should be retained to conduct a worker education session for construction supervisory personnel to explain the importance of, and legal basis for, the protection of significant archaeological resources.

8.3.6.4 Inadvertent Discovery of Human Burials

If human remains are found during construction, project officials are required by the California Health and Safety Code (Section 7050.5) to contact the County Coroner. If the Coroner determines that the find is Native American, he/she must contact the NAHC. The NAHC, as required by the Public Resources Code (Section 5097.98) determines and notifies the Most Likely Descendant (MLD), and requests the MLD to inspect the burial and make recommendations for treatment or disposal (see Appendix 8.3B for a Proposed Native American Burial Protection Program Plan).

8.3.7 Involved Agencies and Agency Contacts

Table 8.3-6 lists the state agencies involved in cultural resources management for the project and a contact person at each agency. These agencies include the NAHC and, for federal lands, the OHP.

TABLE 8.3-6
Agency Contacts

Issue	Contact	Title	Telephone
Native American traditional cultural properties	Ms. Debbie Pilas-Treadway NAHC	Environmental Specialist III	(916) 653-4040
Federal agency NHPA Section 106 compliance	Mr. Knox Mellon Office of Historic Preservation	SHPO	(916) 653-6624

8.3.8 Permits Required and Schedule

Other than certification by the CEC, no state, federal, or local permits are required by the project for the management of cultural resources. Consultation with SHPO and ACHP would be required under Section 106 if federal involvement is to occur and significant cultural resources could be affected by the project.

8.3.9 References Cited or Consulted

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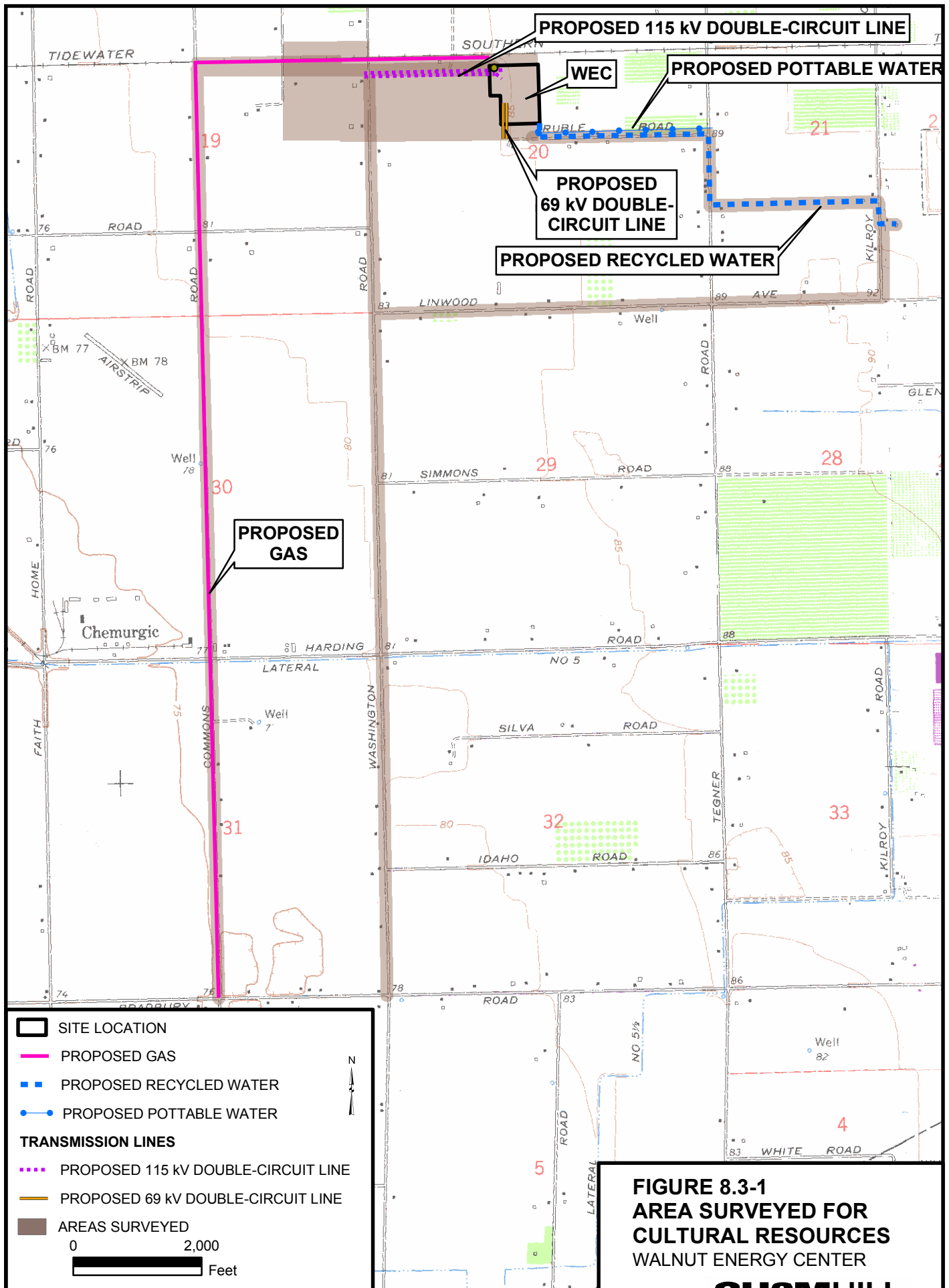


FIGURE 8.3-2

Ethnographic Distribution in Project Area Map (Confidential)

Figure 8.3-2, Ethnographic Distribution in Project Area Map, was submitted separately under a request for confidentiality.